

In response to the Office Action dated September 13, 2001, please amend the application as follows:

IN THE SPECIFICATION:

Please substitute the paragraph starting at page 30, line 27 and ending at page 31, line 9 with the following replacement paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

--In Fig. 1, the ink jet printer includes: a driving part 1020 and a conveyor 1030, including roller units 1024a and 1024b, for intermittently conveying a sheet 1028 as a recording material in a direction shown by an arrow P in Fig. 9, the conveyor being disposed along a longitudinal direction in a casing 1008; a recorder 1010 reciprocating substantially parallel to a direction S crossing at right angles to the conveying direction P of the sheet 1028 by the conveyor 1030; and a movement actuator 1006 as driving means for reciprocating the recorder 1010.--

Please substitute the paragraph starting at page 37, line 1 and ending at line 8 with the following replacement

paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

*A2*  
--Figs. 8 to 15 are sectional views showing the liquid ejecting operation of the liquid ejection head shown in Figs. 3 to 7, and are sectional views along line X-X of the bubbling chamber 1337 shown in Fig. 7. An end of the ejection port portion 940 in the thickness-wise direction of the orifice plate in the cross section constitutes the top 1141a of a groove 1141, which contains ink I.--

Please substitute the paragraph starting at page 38, line 12 and ending at line 23 with the following replacement paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

*A3*  
--Here, in the present example, a plurality of grooves 1141 are dispersed in the ejection port portion. When the meniscus 102 moves backward, a capillary force acts in a direction  $F_c$  opposite to a meniscus backward direction  $F_m$  in a part of the groove 1141. As a result, even if a slight dispersion is recognized on the state of the bubble 101 for some cause, a shape of meniscus or main ink droplet (hereinafter

A3 referred to as liquid or ink in some cases) Ia during retreat of the meniscus is corrected in such a manner that the shape is substantially symmetrical with respect to the ejection port center.--

Please substitute the paragraph starting at page 38, line 24 and ending at page 39, line 10 with the following replacement paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

A4 --In the present example, since fall speed of the meniscus 102 is faster than shrinkage speed of the bubble 101, as shown in Fig. 12, bubble 101 communicates with the atmosphere in the vicinity of the lower surface of the ejection port 832 about 4  $\mu$ s after the bubble generation as shown in Fig. 12. In this case, the liquid (ink) in the vicinity of a center axis of the ejection port 832 sinks toward the heater 931. This is because the liquid (ink) Ia drawn back toward the heater 931 by a negative pressure of the bubble 101 before communicating with the atmosphere holds its speed in a surface direction of heater 931 by inertia even after the communication of the bubble 101 with the atmosphere.--

Please substitute the paragraph starting at page 39, line 24 and ending at page 40, line 9 with the following replacement paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

--Thereafter, a liquid portion Ib between the liquid spread on the surface of the heater 931 and the upside liquid (main liquid droplet) gradually becomes thin, the liquid portion Ib is cut in the middle of the surface of the heater 931 about 7  $\mu$ s after the generation of the bubble 101 as shown in Fig. 15, and the portion is separated into the main liquid droplet keeping the speed vector in the ejection direction and a liquid Ic spread on the surface of the heater 931. As described above, a separation position is preferably inside the liquid channel 1338, more preferably on the side of the electrothermal conversion member 931 rather than on the side of the ejection port 832.--

AS

Please substitute the paragraph starting at page 40, line 19 and ending at line 27 with the following replacement paragraph. A marked-up copy of this paragraph, showing the changes made thereto, is attached.

*A6*

--Since the satellite droplet can be inhibited from being ejected in this manner, a splash due to the ejection of the satellite droplet can be prevented from occurring, and the recording surface of the recoding material can securely be prevented from becoming dirty owing to floating mist. In this regard, in Figs. 12 to 15, Id denotes an ink (ink in the groove) adhering to the groove portion, and Ie denotes an ink remaining in the liquid channel.--

IN THE CLAIMS:

Please amend Claims 1-4, 6, 8-11 as follows. A marked-up copy of Claims 1-4, 6, 8-11 is also attached. All of the pending claims in this application are reproduced below for the Examiner's convenience.

*A7*

1. (Amended) An aqueous ink composition for ink jet comprising:

(i) a resin encapsulating a colorant and having a cationic hydrophilic group,

(ii) a self-dispersing pigment having a cationic hydrophilic group bonded to the surface directly or via another